

Work Order ID 85018

May-31-12 11:53:52 AM

85018

Page 1

Item ID: D205-634-041

Accept

N900040100

Setup Start

NS1

Revision ID:

Stop

NS2

Item Name: Replacement Skidtube

Start Date: 31/05/2012 Start Qty: 1.00

1

Cust Item ID:

Required Date: 18/06/2012 Req'd Qty: 1.00

1

Customer:

Reference:

Approvals:

Process Plan: *MLJ*

Date: *12/05/31*

Tooling:

Date:

Run Start

NR1

QC:

Date:

SPC (Y/N):

Date:

Stop

NR2

Sequence ID/
Work Center ID

Operation
Description

Set Up/
Run Hours

Tool ID

Tool #

Plan
Code

Accept
Qty

Reject
Qty

Reject
Number

Insp.
Stamp

Draw Nbr

Revision Nbr

D2580-041

(DEO) Rev.E

100

0.00

100

DOCUMENT CONTROL

DC

Memo

0.00

Document Control

Photocopy D205-634 bluefile & type labels per PPP D205-634-041 CHG005

0.00

110

BENDING MACHINE - SKIDTUBES

CNC Bend 1

Memo

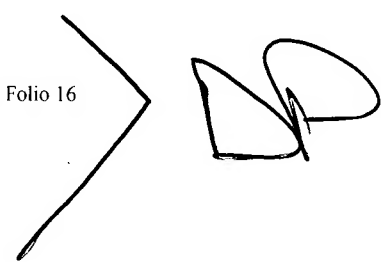
0.00

CNC Delta 100 Bender

1-Bend as per program D2580.C on CNC Bender and Folio 16

2-Cut tubes as per Dwg. D2580

3- scribe batch# in aft end of tube



12-6-27

Dart Aerospace Ltd

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

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DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
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Date:

Tooling:

Date:

Run Start ***NR1***

QC:

Date:

SPC (Y/N):

Date:

Stop ***NR2***Sequence ID/
Work Center IDOperation
DescriptionSet Up/
Run Hours

Tool ID

Tool #

Plan
CodeAccept
QtyReject
QtyReject
NumberInsp.
Stamp

120

0.00

120

Skidtubes

Memo

0.00

Skidtubes

1- Deburr ends and remove bending marks

2- Prepare tube for welding as per QSI 004

130

QC5- Inspect part completeness to step on W/O

0.00

130

QC

Memo

0.00

Quality Control

12/06/27

1 0 0.6 12/06/27

W/O:		WORK ORDER CHANGES					
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Process Plan:

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Tooling:

Date:

Run Start ***NR1***

QC:

Date:

SPC (Y/N):

Date:

Stop ***NR2***Sequence ID/
Work Center IDOperation
DescriptionSet Up/
Run Hours

Tool ID

Tool #

Plan
CodeAccept
QtyReject
QtyReject
NumberInsp.
Stamp

140

0.00

140

Skid tubes

Memo

0.00

1-Weld step D2576 as per Dwg. D2580 and QSI 004
A/R Aluminum Rod *M122130**BE 02/06/27*

2-Grind welds on step as per Dwg D2580

*BE 12/06/27*3- Insert D4202-1 spacer, swage as per QSI002 and trim/ grind flush per QSI002
and dwg. Hold x-bolt with DT9701 Use tube expander 1/2 x 17G to start
expansion and finish with 1/2 x 18G to achieve dwg dimension.4-Drill holes for wearplates using DT 8217 & DT8937, 7.40" from most fwd
saddle holes (ref only) Open holes to 19/64", adjust stopper not to hit
web. Debur*DC 12/07/09*

6-Drill pilot holes for aft cap using DT 8215 Open holes to 0.208". Debur

7-Drill pilot holes for Tow ring using DT8091, open to .640" and Debur

150

QC10- Inspect visual per QSI004- ground welds

0.00

150

QC

Fwd CAP only
Memo*5 17/11/10*

Quality Control

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Date:

Run Start ***NR1***

QC:

Date:

SPC (Y/N):

Date:

Stop ***NR2***

Sequence ID/
Work Center ID

Operation
Description

Set Up/
Run Hours

Tool ID

Tool #

Plan
Code

Accept
Qty

Reject
Qty

Reject
Number

Insp.
Stamp

160

QC5- Inspect part completeness to step on W/O

0.00

160

QC

Memo

0.00

E. 2/10/10

Quality Control

170

Pressure Wash per QSI005 4.3

0.00

170

HandFinish

Memo

0.00

Hand Finishing

Re-alodine tube as per QSI 005 section 4.1.2.1 do not acid etch and leave fwd cap out of solution.

1 76 12-7-10

180

White Gloss(Ref:4.3.5.1) per QSI005 4.3-Alum

0.00

180

Powdercoat

Memo

0.00

Powder Coating

START TIME:

OVEN TEMPERATURE:

FINISH TIME:

*10:30
320 °F
11:00*

MA 12/07/10

M121481

W/O:		WORK ORDER CHANGES					
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Date:

Run Start ***NR1***

QC:

Date:

SPC (Y/N):

Date:

Stop ***NR2***Sequence ID/
Work Center IDOperation
DescriptionSet Up/
Run Hours

Tool ID

Tool #

Plan
CodeAccept
QtyReject
QtyReject
NumberInsp.
Stamp

190

QC3- Inspect Part Finish

0.00

190

QC

Memo

0.00

Quality Control

14 1/2 12/07/14

W/O:		WORK ORDER CHANGES					
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Cust Item ID:

Required Date: 18/06/2012 Req'd Qty: 1.00 *1*

Customer:

Reference:

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____

Run Start *NR1*

QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Stop *NR2*

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
--------------------------------	--------------------------	----------------------	---------	--------	--------------	---------------	---------------	------------------	----------------

200

0.00

200

HandFinish

Hand Finishing

Memo

0.00

1-Install inserts & wearplates & Gaskets as per Dwg. D2580. Use a drop of

Sikaflex on insert holes before installing wearplates

A/R Sikaflex-291 11/122130

Sikaflex expire date: 14/03

2-Coat D2594-3 O' rings with Petroleum Jelly and install on D2594-1 plugs as per Dwg D2580

3-Inspect for foreign object per QSI 024

4-Install 2855 Aft Cap as per Dwg D2580 and seal Fwd Step & Aft Cap with

Sikaflex. Clean excess adhesive

A/R Sikaflex-291 11/142130

Sikaflex expire date: 14/07

5-Wing Walk as per Dwg D2580 and QSI 005 4.4

Batch: 11/122326

1x of Malabar

W/O:		WORK ORDER CHANGES					
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Customer:

Reference:

Approvals:

Process Plan:

Date:

Tooling:

Date:

Run Start ***NR1***

QC:

Date:

SPC (Y/N):

Date:

Stop ***NR2***

Sequence ID/
Work Center ID

Operation
Description

Set Up/
Run Hours

Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
---------	--------	-----------	------------	------------	---------------	-------------

210

QC5- Inspect part completeness to step on W/O

0.00

210

QC

Quality Control

Memo

Inspect Aft Cap, Fwd Step and Wing Walk of work to Current Step Inspect for Foreign objects per QSI 024

0.00

220

Packaging

0.00

220

Packaging

Packaging

Memo

Identify and pack for shipping as per PPPD205-634-041

Location:

PPP Rev:

0.00

230

QC21- Final Inspection - Work Order Release

0.00

230

QC

Quality Control

Memo

0.00

12/07/13

MLJ 12/07/13

MLJ 12/07/13

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

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Page 1

85018

D205-634-041

Required Date: 18/06/2012

Required Qty: 1.00

Comments: IPP Rev:N 02.08.28 FP was QC5 in Step 27; Added QC5 to Step 30
KJ IPP Rev P 10.02.19
per PAR09-043 EC verified by:DD
IPP Rev. O 06.02.28 Added paperwork EC
IPP Rev:P 07-07-09 SS Wearplates & Gaskets JLM IPP Rev:Q
10.12.01 as per chg003 DD verf:EC IPP REV:R 12.01.23 AS
PER ECN11-684 VEF:EC

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Qty per Kit	Total Qty	Qty Issued	Date Issued	Status
D4202-1		Manufactured	No			140	Each	81.0000	20	20			
D4202-1									**			Dec 12 / 07 / 09	
Spacer												(20)	
				<u>Location</u>	B84763	<u>Loc Qty</u>		<u>Loc Code</u>					
				LG		5							
					77727	5							
				LG002		76							
					78806	6							
					79810	70							
D2580-1		Manufactured	No			110	Each	4.0000	1	1			
D2580-1									**			12-6-27	
205 Skidtube bent detail												(1)	
				<u>Location</u>	85892	<u>Loc Qty</u>		<u>Loc Code</u>					
				LG		4							
					76570	2							
					77679	2							
D2576-3		Manufactured	No			140	Each	77.0000	1	1			
D2576-3									**			BE 12/06/27	
Step (maching detail)												/	
				<u>Location</u>		<u>Loc Qty</u>		<u>Loc Code</u>					
				LG		77							
					74136	25							
					82257	52							

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

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Picklist Print

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Work Order ID: 85018

Parent Item: D205-634-041

Parent Item Name: Replacement Skidtube

85018

D205-634-041

Start Date: 31/05/2012

Required Date: 18/06/2012

Start Qty: 1.00

Required Qty: 1.00

D2855

Manufactured No

200

Each

21.0000

1

1

D2855

Cap

**

11/07/11

Location

Loc Qty

Loc Code

FP002

21

65519

2

B84952

x 1

73347

16

75074

3

AN3-5A

Purchased

No

200

Each

1,090.000

2

2

AN3-5A

Bolt

**

11/07/11

Location

Loc Qty

Loc Code

ST350

1090

115371

46

117423

124

118626

31

119355

200

120187

500

x 2

121185

189

AN960JD10L

NAS1149D0332J

Purchased

No

200

Each

0.0000

2

2

*AN960JD10L * *

Washer

**

11/12/11

(x2) 11/07/11

May-31-12 11:53:56 AM

Shop Packet Print

Page 2

Dart Aerospace Ltd

W/O:		WORK ORDER CHANGES					
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May-31-12 11:53:56 AM

Work Order ID: 85018

Parent Item: D205-634-041

Parent Item Name: Replacement Skidtube

85018

D205-634-041

Start Date: 31/05/2012

Required Date: 18/06/2012

Start Qty: 1.00

Required Qty: 1.00

ALS7-1032-130

Purchased

No

200

Each

2,136.000

50

50

AI S7-1032-130

Insert

**

HL 12/07/11

Location

Loc Qty

Loc Code

ST280

51

117717

27

118966

22

119775

2

ST282

2085

119530

73

120181

12

121444

2000

850

AN3C4A

Purchased

No

200

Each

1,362.000

50

50

AN3C4A

BOLT

**

HL 12/07/11

Location

Loc Qty

Loc Code

ST350

1362

120187

57

120521

28

120769

38

121205

1000

121556

239

1122151

Y50

AN960C10L

NAS1149C0332

Purchased

No

200

Each

0.0000

50

50

*AN960C10I *

washer

**

11122063

Cxd HL 12/07/11

W/O:		WORK ORDER CHANGES					
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D205-634-041

Parent Item Name: Replacement Skidtube

Start Date: 31/05/2012

Required Date: 18/06/2012

Start Qty: 1.00

Required Qty: 1.00

D3566-13

Manufactured No

200

Each

13.0000

1

1

D3566-13

Gasket

**

sl

12/07/11

Location

Loc Qty

Loc Code

FP

12

83351

12

Y1

FP002

1

76947

1

D3566-5

Manufactured No

200

Each

21.0000

1

1

D3566-5

Gasket

**

sl

12/07/11

Location

Loc Qty

Loc Code

FP

12

82275

12

FP002

9

80374

3

82274

6

1384881

Y1

D3566-1

Manufactured No

200

Each

27.0000

2

2

D3566-1

Gasket

**

sl

12/07/11

Location

Loc Qty

Loc Code

FP

-26

81619

6

FP002

53

68924

2

80919

3

83898

16

1384879

VZ

May-31-12 11:53:57 AM

Shop Packet Print

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Dart Aerospace Ltd

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D205-634-041

Parent Item Name: Replacement Skidtube

Start Date: 31/05/2012

Required Date: 18/06/2012

Start Qty: 1.00

Required Qty: 1.00

D3564-11

Manufactured No

200

Each

30.0000

1

1

D3564-11

Wearshoe

**

xl 12/07/11

Location

Loc Qty

Loc Code

FG

4

77056

4

FP001

26

80341

4

83910

22

yl

D3564-13

Manufactured No

200

Each

26.0000

1

1

D3564-13

Wearshoe

**

xl 12/07/11

Location

Loc Qty

Loc Code

FP001

1

71594

1

FP002

25

80342

3

82249

22

xl

D3564-9

Manufactured No

200

Each

20.0000

1

1

D3564-9

Wearshoe

**

xl 11/07/11

Location

Loc Qty

Loc Code

FG

4

76950

4

FP001

16

67590

4

69943

1

82255

11

1384870

xl

pl

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

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Start Date: 31/05/2012

Required Date: 18/06/2012

Start Qty: 1.00

Required Qty: 1.00

D3564-5

Manufactured No

200

Each

13.0000

1

1

D3564-5

Wearshoe

**

HL 11/07/11

Location

Loc Qty

Loc Code

FG

2

34806

2

1384869

KL

FP001

11

77609

3

82254

8

D2594-3

Manufactured No

200

Each

2.418.000

16

16

D2594-3

O-Ring, 205 Skidtube

**

HL 11/07/11

Location

Loc Qty

Loc Code

FP001

2418

65518

41

79496

984

79573

50

79755

1343

X16

D2594-1

Manufactured No

200

Each

311.0000

16

16

D2594-1

Plug, 205 Skidtube

**

HL 11/07/11

Location

Loc Qty

Loc Code

FP001

98

73401

30

74442

18

79495

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FP-A

213

1384951

X16

73401

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78590

213

Dart Aerospace Ltd

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

8

7

6

5

4

3

2

1

LIST OF MATERIALS

ITEM	QTY -041	QTY -045	QTY -047	PART NUMBER	DESCRIPTION
1	X			D2580-041	SKIDTUBE ASSEMBLY
2		X		D2580-045	SKIDTUBE ASSEMBLY
3			X	D2580-047	SKIDTUBE ASSEMBLY
4	1	1	1	D2500-1-190	EXTRUSION
5			16	D2570	BUSHING
6	1	1	1	D2576-3	STEP
7	20	24	25	D2579	SPACER
8	16	16	8	D2594-1	PLUG
9	16	16	8	D2594-3	O-RING
10	1	1	1	D2596	205 WEB
11	1	1	1	D2855	AFT CAP
12	1	1		D3564-5	WEARSHOE
13	1	1		D3564-9	WEARSHOE
14	1	1		D3564-11	WEARSHOE
15	1	1		D3564-13	WEARSHOE
16	2	2		D3566-1	GASKET
17	1	1		D3566-5	GASKET
18	1	1		D3566-13	GASKET
19			1	D4406-041	WEARPLATE ASSEMBLY
20			1	D4406-043	WEARPLATE ASSEMBLY
21	50	50		ALS7-1032-130 or AKS7-1032-130 or AKS4-1032-130 or AELS-1032-130	INSERT
22	50	50		AN3C4A	BOLT
23	2	2	2	AN3-5A	BOLT
24			8	AN4-45A	BOLT
25	50	50		NAS1149C0332R	WASHER (AN960C10L)
26	2	2	2	NAS1149D0332J	WASHER (AN960JD10L)
27			8	MS21042-4	NUT (OR MS21042L4)

GENERAL NOTES:

- 1) MATERIAL N/A
- 2) FINISH, CHEMICAL CONVERSION PER DART QSI 005 4 1 PRIOR TO INSERTING D2596 WEB
POWDER COAT ASSEMBLY (-041/-047) GLOSS WHITE (REF 4 3 5 1) PER DART QSI 005 4 2
POWDER COAT ASSEMBLY (-045) GREEN SANDEX (REF 4 3 5 8) PER DART QSI 005 4 3
BLACK ANTI-SKID PAINT AS INDICATED PER DART QSI 005 4 4
- 3) TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED.
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED.
- 5) BREAK SHARP EDGES, 0.005 TO 0.010 MAX.
- 6) IDENTIFICATION NONE
- 7) WEIGHT: D2580-041 = 34.5 lbs
D2580-045 = 34.5 lbs
D2580-047 = 37.7 lbs
- 8) WELDING PER DART QSI 004.
- 9) INSERT D2596 WEB TO LOCATION SHOWN OFF AFT END OF SKIDTUBE AND BOND WEB INTO OUTER TUBE WITH NON-STRUCTURAL SIKAFLEX-241 ADHESIVE PER DART QSI 015 BEFORE BENDING. ENSURE HOLES LINE UP
- 10) BEND AS A SMOOTH RADIUS STARTING WITH A MAXIMUM CENTERLINE RADIUS OF 60 AND ENDING WITH A MINIMUM RADIUS OF 30. A MAXIMUM REDUCTION OF 0.200 IN DIAMETER IS ALLOWABLE IN THE BENT PORTION OF THE TUBE
- 11) USE DART DRILL TEMPLATE DT8217 & DT8937 ONLY FOR D2580-041/-045 TO LOCATE AND DRILL Ø0.297 HOLES FOR WEARSHOE INSERTS. INSTALL ALS7-1032-130 PER SECTIONS B-B AND F-F (50 PLACES) AFTER FINISH. INSTALL AN3C4A BOLTS AND NAS1149C0332R WASHERS WITH SIKAFLEX-241/291
- 12) INSERT D2594-1 PLUG C/W D2594-3 O RING IN HOLES MARKED 'P' (BOTH SIDES OF TUBE) AFTER FINISH (16 PLACES FOR D2580-041/-045 AND 8 PLACES FOR D2580-047)
- 13) IT IS ACCEPTABLE TO GRIND A RELIEF IN THE D2855 AFT CAP TO PREVENT INTERFERENCE WITH THE SPACER AT THIS LOCATION

DEO ATTACHED

RELEASED

2011-08-29

SHOP COPY
RETURN TO
ENGINEERING
UNCONTROLLED COPY
SUBJECT TO AMENDMENT
WITHOUT NOTICE
WORK ORDER
NO. 85018 MLJ
12/05/31

E	ADD D2580-047 (ZN C4-7) AND D2580-7 (ZN B3-8); INCLUDED DEO D2580-D-1; REFORMATTED DRAWING TO CURRENT STANDARDS, DT8217 & DT8937 WAS T02577-205 (ZN C4-1)	RF	11.06.21
D	CHANGE TO SS WEARPLATES AND GASKETS, INCLUDE DEO 9124/ 9183	PH	07.04.05
C	REDRAWN, INCLUDED DEO 9094/ 9097	CP	98.08.26
B	AS MANUFACTURED	DS	98.12.02
A	NEW ISSUE	DS	96.09.16
REV.	DESCRIPTION	BY	DATE
DESIGN	#		
DRAWN	RF		
CHECKED	#		
MFG. APPR.	#		
APPROVED	#		
DE APPR.	#		
DATE	11.06.21		

DART AEROSPACE LTD
HAWKESBURY, ONTARIO, CANADA

DRAWING NO. REV. E
D2580 SHEET 1 OF 8
TITLE SCALE
205 SKIDTUBE ASSEMBLY NTS

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Dart Aerospace Ltd

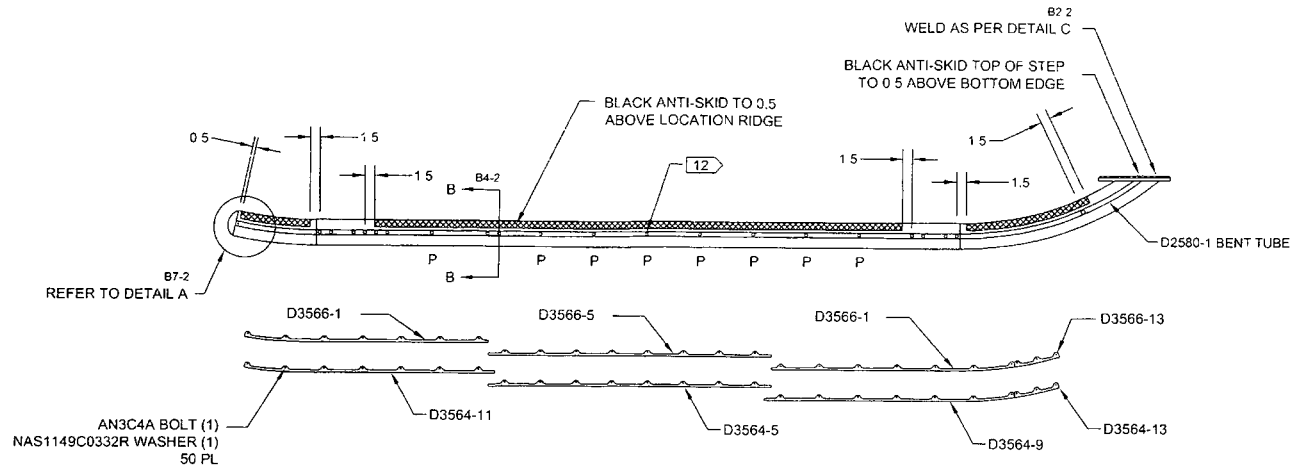
W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ **PAR #:** _____ **Fault Category:** _____ **NCR: Yes No** **DQA:** _____ **Date:** _____
Resolution: _____ **Disposition:** _____ **QA: N/C Closed:** _____ **Date:** _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

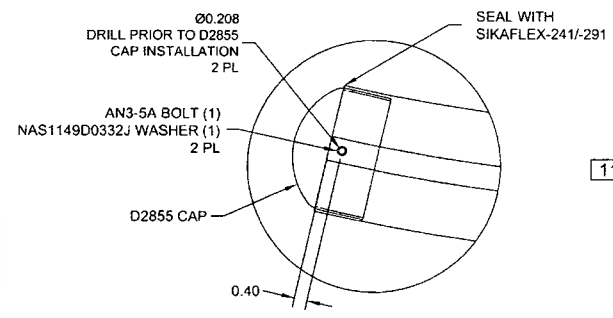
NOTE: Date & initial all entries

85018

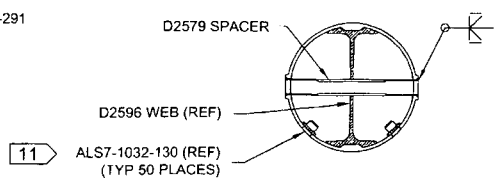


D2580-041 ASSEMBLY DETAIL

DETAIL A C7-2
SCALE 5X

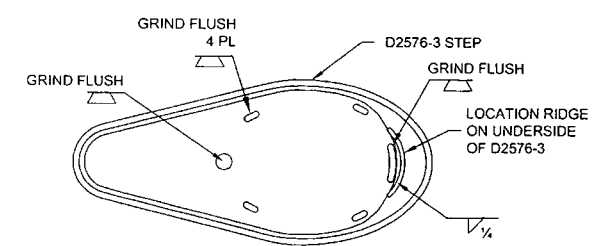


SECTION B-B D5-2
SCALE 5X



- AFTER DRILLING AND BENDING ASSEMBLY
PERFORM THE FOLLOWING FOR Ø0.508 HOLES ONLY:
1. CHAMFER HOLE 0.050 X 45°
 2. INSERT D2579 SPACER (20 PLACES)
 3. WELD INTO PLACE AND GRIND FLUSH
 4. C-BORE D2579 SPACER TO Ø0.437 X 1.00 DEEP

DETAIL C D3-2
SCALE 5X



DESIGN	4	DART AEROSPACE LTD	
DRAWN	RF	HAWKESBURY, ONTARIO, CANADA	
CHECKED	140	DRAWING NO	REV E
MFG. APPR.	140	D2580	SHEET 2 OF 8
APPROVED	140	TITLE	SCALE
DE APPR.	140	205 SKIDTUBE ASSEMBLY	NTS
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W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

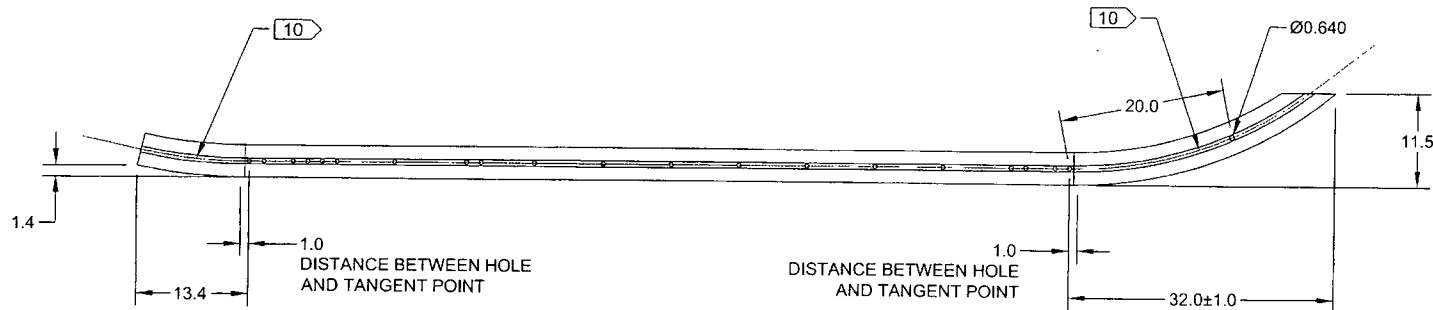
Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

85018



D2580-1 BENT TUBE
(MAKE FROM D2580-101 TUBE)

DEO ATTACHED

RELEASED
2011-08-28
JW

DESIGN	#	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
DRAWN	RF		
CHECKED	10	DRAWING NO.	REV. E
MFG. APPR.		D2580	SHEET 3 OF 8
APPROVED	10	TITLE	SCALE
DE APPR.		205 SKIDTUBE ASSEMBLY	NTS
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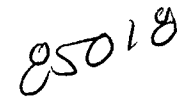
W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

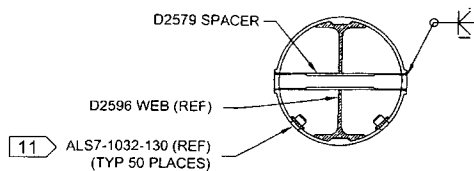
NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries



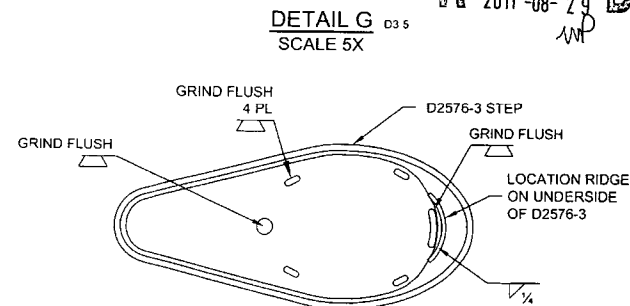
DEO ATTACHED

RELEASED
2011-08-29



**AFTER DRILLING AND BENDING ASSEMBLY
PERFORM THE FOLLOWING FOR Ø0.508 HOLES ONLY:**

- 1. CHAMFER HOLE 0.050 X 45°**
- 2. INSERT D2579 SPACER (24 PLACES)**
- 3. WELD INTO PLACE AND GRIND FLUSH**
- 4. C'BORE D2579 SPACER TO Ø0.437 X 1.00 DEEP**



DESIGN	4	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA DRAWING NO. D2580 TITLE 205 SKIDTUBE ASSEMBLY COPYRIGHT © 1996 BY DART AEROSPACE LTD <small>"THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE UNDERSTANDING THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMENCED TO BE MADE OR REPRODUCED WITHOUT PERMISSION FROM DART AEROSPACE LTD."</small>	REV. E
DRAWN	RF		SHEET 4 OF 4
CHECKED	10		SCALE
MFG APPR.	10		NT
APPROVED	10		
DE APPR	10		
DATE	11.06.21		

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

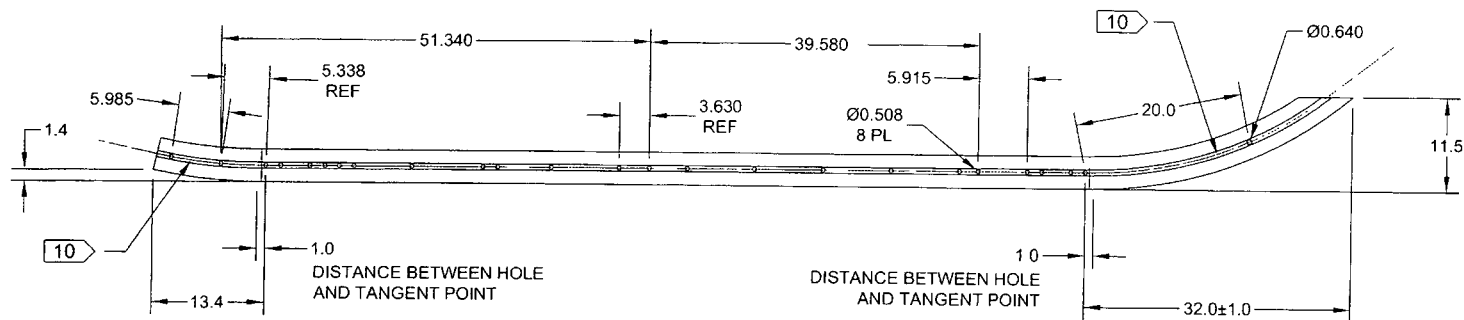
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Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

05018



D2580-5 BENT TUBE
(MAKE FROM D2580-101 TUBE)

DEO ATTACHED

RELEASED
2011-08-29

DESIGN	RF	DART AEROSPACE LTD	
DRAWN	RF	HAWKESBURY, ONTARIO, CANADA	
CHECKED	RF	DRAWING NO	REV. E
MFG. APPR	RF	D2580	SHEET 5 OF 8
APPROVED	RF	TITLE	SCALE
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Dart Aerospace Ltd

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____
 Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

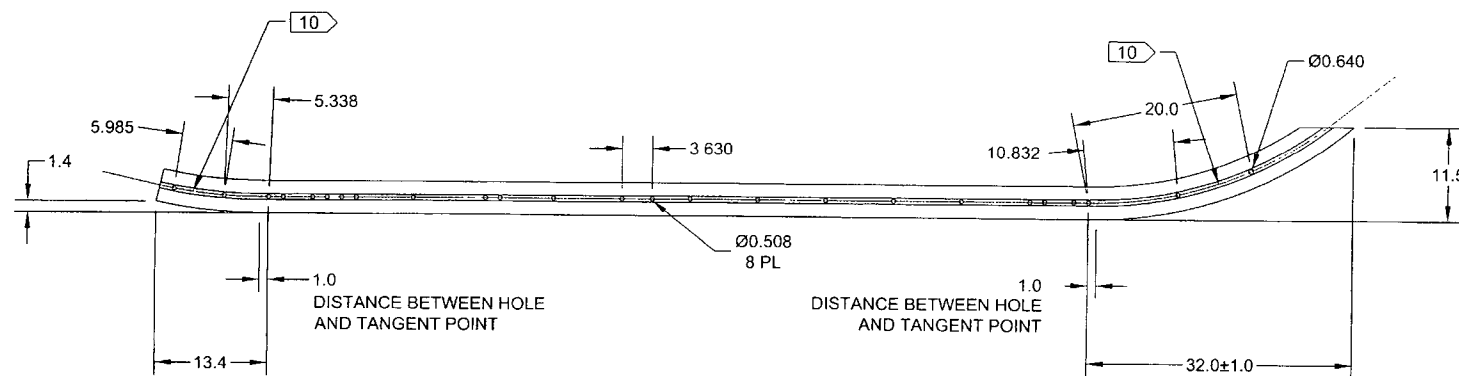
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Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

250 18



D2580-7 BENT TUBE
(MAKE FROM D2580-101 TUBE)



DEO ATTACHED
RELEASE
2011-08-29
AW

DESIGN	#	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
DRAWN	RF		
CHECKED	AP	DRAWING NO.	REV. E
MFG. APPR	AP	D2580	SHEET 7 OF 8
APPROVED	AP	TITLE	SCALE
DE APPR.	AP	205 SKIDTUBE ASSEMBLY	NTS
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W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

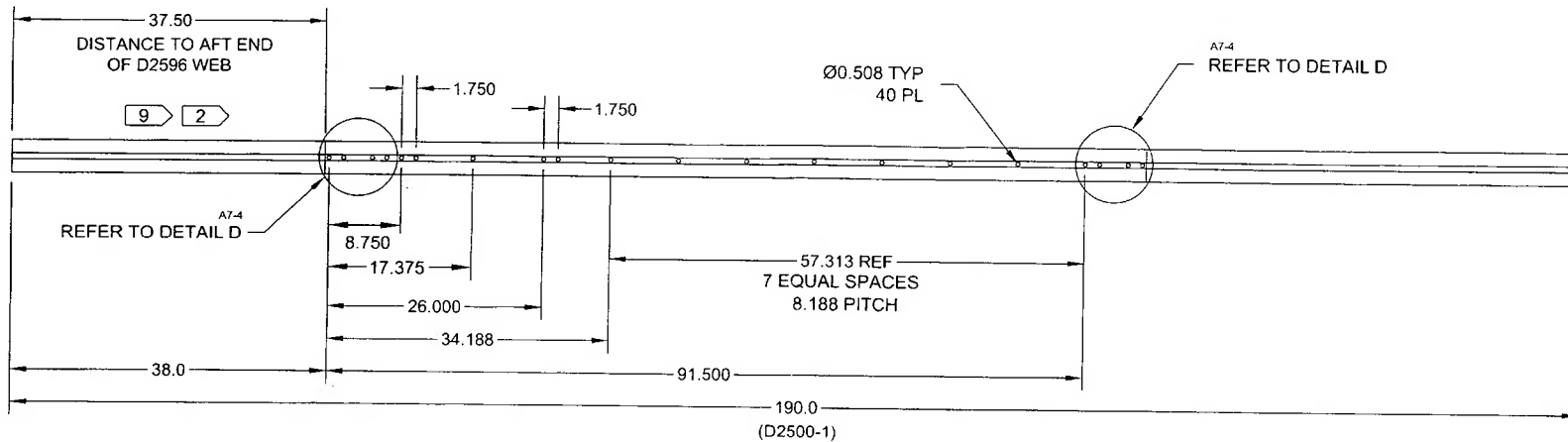
Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

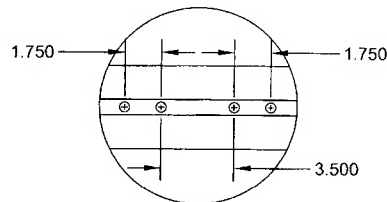
NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

25018



D2580-101 TUBE



DETAIL D D3-4
SCALE 5X C7-4

DEO ATTACHED
RELEASED
2011-08-29

DESIGN	#	DART AEROSPACE LTD	
DRAWN	RF	HAWKESBURY, ONTARIO, CANADA	
CHECKED	140	DRAWING NO.	REV. E
MFG. APPR.	140	D2580	SHEET 8 OF 8
APPROVED	140	TITLE	SCALE
DE APPR.	140	205 SKIDTUBE ASSEMBLY	NTS
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W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

DRAWING NO. D2580	TITLE 205 SKIDTUBE ASSEMBLY	REV. E	DART AEROSPACE LTD ENGINEERING ORDER	D.E.O. NO. D2580-E-1	SHEET NO. SHEET 1 OF 1	SCALE NTS
DRAWN <i>JP</i>	CHECKED <i>ASS</i>	MFG. APPR. <i>EC</i>	APPROVED <i>[Signature]</i>	DE APPR. <i>[Signature]</i>		
DATE 11.12.13	DATE 11.12.13	DATE 11.12.13	DATE 11.12.13	DATE 11.12.13		

PURPOSE:

CHANGE ALL C'BORED WELDED CROSSBOLT SPACERS TO SWAGED SPACERS

CHANGE:

PARTS LIST IS AMENDED AS FOLLOWS:

WAS

QTY	QTY	QTY	PART NUMBER	DESCRIPTION
-041	-045	-047		
20	24	25	D2579	CROSS BOLT SPACER

IS

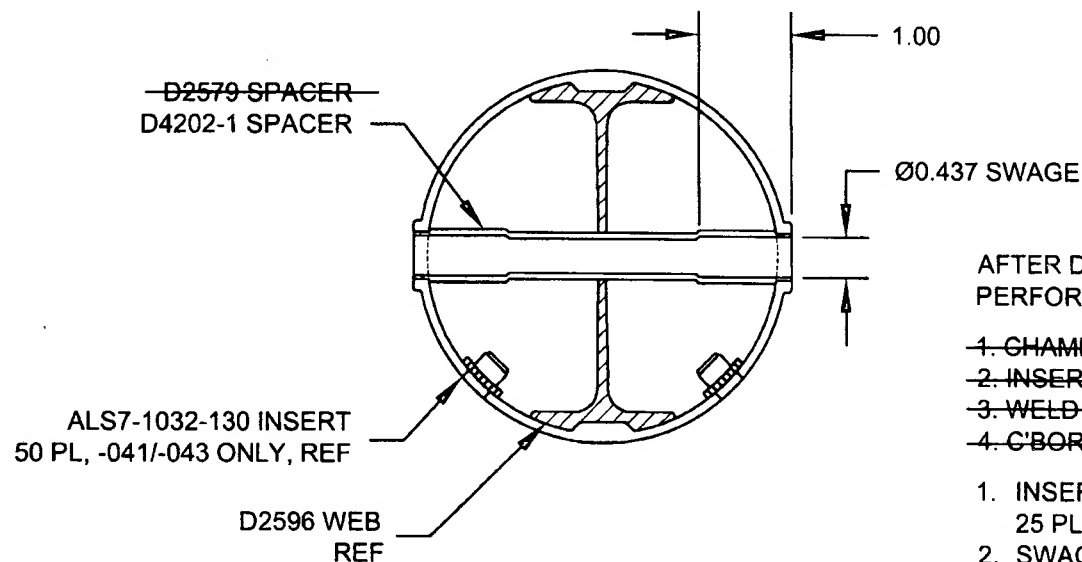
	4		* D2579	CROSS BOLT SPACER
20	20	25	D4202-1	SPACER

SECTION B-B, SECTION F-F, & SECTION I-I ARE AMENDED AS FOLLOWS
FOR ALL HOLES THAT WERE ORIGINALLY C'BORED:

*** FOR -045 SKIDTUBE ONLY:**

WELD 4X D2579 SPACERS PER DWG
IN LOCATIONS MARKED "NO C'BORE".
REF SHEET 4 OF DWG.

RELEASED
2011-12-14 *[Signature]*



AFTER DRILLING AND BENDING ASSEMBLY
PERFORM THE FOLLOWING FOR Ø0.508 HOLES ONLY:

1. CHAMFER HOLE 0.050 X 45°
2. INSERT D2579 SPACER (20 PLACES)
3. WELD INTO PLACE AND GRIND FLUSH
4. C'BORE D2579 SPACER TO Ø0.437 X 1.00 DEEP

1. INSERT D4202-1 SPACER, 20 PL (-041) OR 20 PL (-045) OR 25 PL (-047)
2. SWAGE TO Ø0.437 X 1.00 DEEP PER QSI 002
3. TRIM / GRIND FLUSH PER QSI 002

SECTION B-B, F-F, I-I
NOT TO SCALE

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries